PROC. BIOL. SOC. WASH.
95(2), 1982, pp. 392–397

A NEW SPECIES OF *SPHAERODACTYLUS* (REPTILIA: SAURIA: GEKKONIDAE) FROM EASTERN CUBA

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Abstract.—A new species of gecko, *Sphaerodactylus celicara,* of the *notatus*-group, is described from extreme northeastern Cuba. Comparisons are made with its most closely related geographical congeners, *S. notatus* and *S. bromeliarum.*

A striking feature of the distribution of *Sphaerodactylus* in Cuba is that the easternmost province, Oriente, harbors the greatest diversity of species, representing several species-groups of these small lizards. One of these, *S. notatus,* belongs to a complex of geckos whose center of diversity is Hispaniola (and secondarily Puerto Rico). On Cuba, there is only one species (*S. bromeliarum* Peters and Schwartz) that is closely related to *S. notatus,* in contrast to 14 *notatus*-group species on Hispaniola.

There are some peculiarities in scutellation and pattern in *S. notatus* on Cuba. For instance, keeling on the throat does not occur in specimens from the Isla de la Juventud (=Isla de Pinos) or, on the main island, from Pinar del Río to Camagüey provinces. Throat keeling occurs more or less variably (in some individuals from the same locality and in varying degrees) in Oriente specimens. A second variable feature is the occurrence in females of a dark scapular patch with 2, rarely 1, included pale ocelli. In western and central Cuba, the female scapular pattern is absent. In Oriente, on the other hand, 26% of the females have a scapular patch and ocelli. Since absence of this patch, the presence of which is characteristic of *S. bromeliarum,* is one of the distinctive characteristics of the Cuban subspecies *S. n. atactus* Schwartz, these eastern specimens have seemed anomalous.

The senior author sent a series of 14 specimens from the extreme northeastern region of Cuba to the junior author. Many of these are larger lizards than typical *S. n. atactus* and differ in scutellation; in addition, they to a large extent (but not totally) clarify the problem of occurrence of a female scapular patch and ocelli. The males normally have both the upperside of the head and throat vividly and distinctly spotted or dotted with very dark brown. Data from these specimens were combined with data from other geckos from this same general region, using the presence of a scapular patch and ocelli and scutellar counts as criteria, and we now have a clearer picture of the variation in *notatus*-like geckos in this particular region. We have examined a total of 239 *S. notatus* from Cuba, including 182 specimens from Oriente alone (on 118 of which full counts were taken) and 37 from the Isla de la Juventud and the Archipiélago de los Canarreos, and we feel secure in naming this northeastern population as a distinct species.

Sphaerodactylus celicara, new species

Holotype.—IZ 5613, adult female, from Asunción, Maisí, Baracoa, Oriente Province, Cuba, collected 10 May 1979 by Orlando H. Garrido.

Paratypes.—IZ 5611–12, IZ 5616–19, ASFS V44969–70, same data as holotype; ASFS V44968, La Máquina, Gran Tierra, Maisí, Oriente Province, Cuba, 10 May 1979, M. L. Jaume; IZ 5378, Hotel Asunción, Grand Tierra, Maisí, Oriente Province, Cuba; 17 September 1978, P. Espinosa, H. Saragua, A. Vega; IZ 4725, 3 km W Yumurí, Oriente Province, Cuba, May 1976, Gilbert; IZ 5414–15, Zapote de Mandinga, Baracoa, Oriente Province, Cuba, 10 May 1979, O. H. Garrido.

Associated specimens.—All are from Oriente Province, Cuba: IZ 3455–57, Hoyos de Sabanilla; IZ 4214–16, La Poa, Sabanilla; IZ 3453, IZ 3537, IZ 3585, base of Monte Iberia; IZ 3648, Jaguaní, Baracoa: IZ 106, IZ 113, La Tinta, barrio be Jauco, Baracoa; IZ 4096, La Yagruma, Maisí, Baracoa; IZ 4258, Punta de Maisí; MCZ 13595–96, Jauco, seacoast at Cabo Maisí; MCZ 11215, Cueva de Majana, Baracoa.

Definition.—A species of the *notatus*-group of *Sphaerodactylus* characterized by the combination of: 1) moderate size, males to 32 mm, females to 31 mm snout–vent length (SVL); 2) high number of dorsal scales (21–30) between axilla and groin, each dorsal scale with 11–14 hair-bearing organs, each with one hair, around the free edge and apex of the scale; 3) high number of scales (40–51) around midbody; 4) scapular patch and ocelli almost always present in females, only ocelli usually present in males; 5) heads of adults of both sexes heavily dotted or marbled with dark brown, both dorsally, and ventrally on the throat, in strong contrast to the brown color of the remainder of the body; 6) females typically bilineate dorsally, males more or less unicolor to salt-and-pepper, brown; 7) internasals 0–2, with a high incidence (35%) of internasals absent (=0).

Description of holotype.—Adult female, SVL 31 mm, tail length 34 mm. Scale counts: dorsal scales keeled, tectiform, imbricate, between axilla and groin 29; ventral scales between axilla and groin 24; scales around midbody 47; fourth toe lamellae 11; 3/3 supralabials to mid-eye; no internasals; 2 postnasals. Throat, chest, and ventral scales smooth, imbricate, cycloid. Dorsal color (preserved) dark brown with dorsolateral pair of slightly paler lines (Fig. 1), strongly outlined with black, beginning at well developed black scapular patch which includes two pale (grayish) ocelli; head pattern basically dark trilineate, with a median dark line, narrow on snout and expanding on occiput and continuing to scapular patch, somewhat paler centrally, and on each side a narrow dark canthal line to the eye, continuing posteriorly from eye as broad dark line to lateral margins of scapular patch, the two forming a more or less square brownish area surrounding the scapular patch. The lateral pair of cephalic lines bordered below by pale lines that continue clearly above the forelimb insertion; pale area between lateral lines and central dark line on head containing a dark postocular line extending to occiput. Sides of neck brownish, dotted with darker brown; upper lip mottled with strongly contrasting dark brown and pale ground color, the mottling extending onto the throat as strongly contrasting dark brown dots and lines, this pattern becoming diffuse on the chest which is stippled with dark brown. Ventral scales edged with dark brown, resulting in a generally dark venter; tail brown with obscure darker brown marbling; upperside of all limbs dark brown, stippled or spotted with darker brown.

Variation.—The holotype and 30 paratypes and associated specimens show the following variation. Largest males (IZ 5611, IZ 5617) 32 mm SVL (range 25–32 mm), largest females (IZ 5613, IZ 5619) 31 mm (22–31 mm); dorsals between axilla and groin 21–30 ($\bar{x}$ = 25.8), ventrals between axilla and groin 22–34 (26.1);

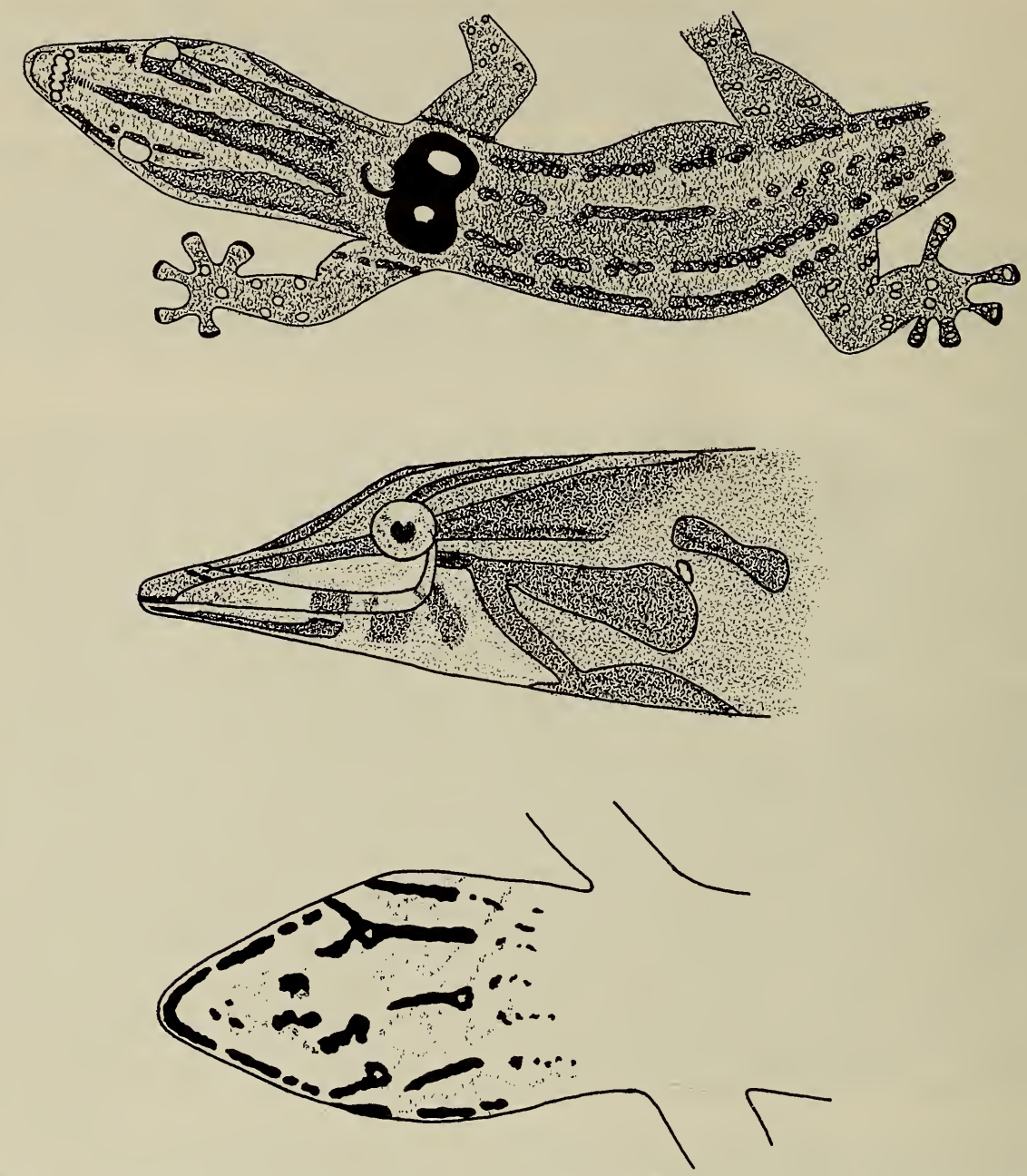

Fig. 1. *Sphaerodactylus celicara,* holotype (IZ 5613). Upper figure, dorsal view; middle figure, lateral view of head pattern; lower figure, ventral view of throat pattern.

midbody scales 40–51 (45.2); fourth toe lamellae 9–13 (10.6; mode 11); supralabials 3/3 (29 individuals), 3/4 (1), 4/4 (1); internasals 0 (11 individuals), 1 (17), 2 (3); male escutcheon 4–7 × 10–26; throat, chest, and ventral scales smooth in 23 specimens, throat scales keeled in 7 specimens; upper side of head lined or heavily dotted in 7 males, head markings absent in 2; throats heavily dotted in 7 males, these markings absent in 2; scapular patch and ocelli present in 21 females, absent in one.

Of the four male paratypes, three agree well with the definition of the species. They have the dorsum salt-and-pepper or apparently unicolor tan with strongly contrasting dark brown head mottling or marking on a pale ground. The dark dorsal head mottling continues onto the throat in these specimens as very heavy dark mottling comparable to that of the upper surface of the head. Venters have

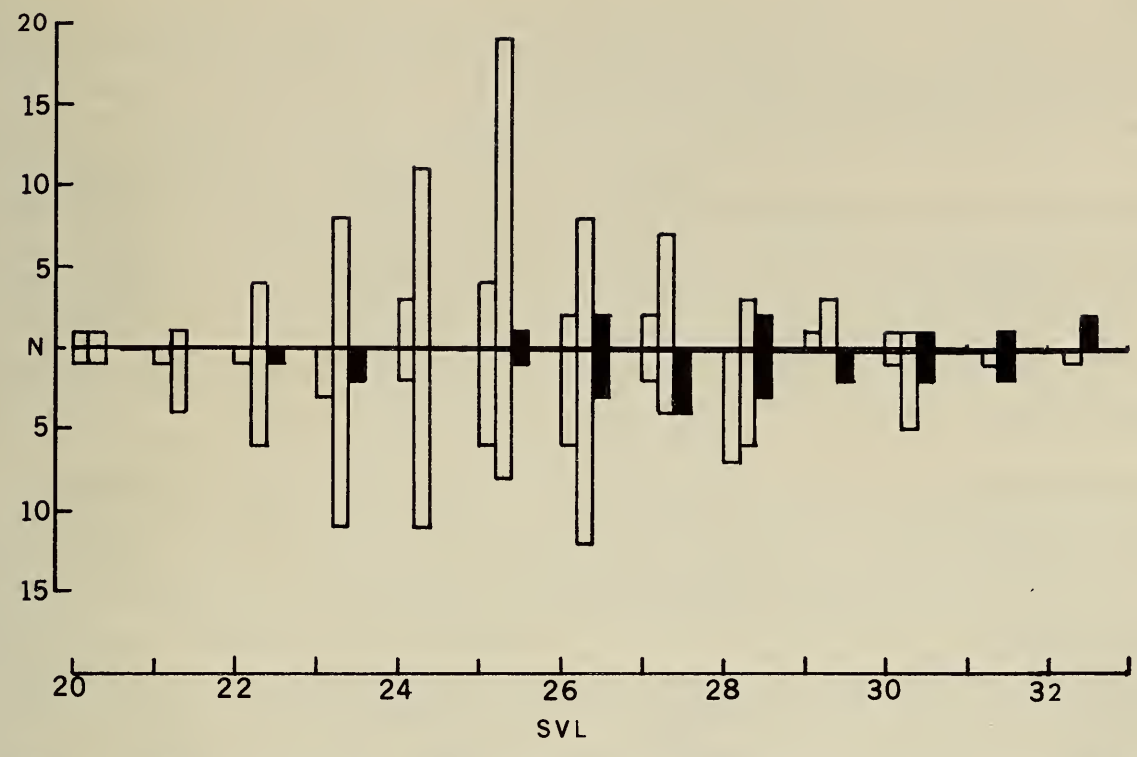

Fig. 2. Histogram of snout–vent length (in mm) of two samples of *S. notatus* (open rectangles) and *S. celicara* (dark rectangles); males are shown above the horizontal line, females below it. Each individual is indicated by an interval of 0.2 mm.

dark-edged scales. The exceptional male (IZ 5612, SVL 31 mm) lacks any dorsal or ventral pattern. Although there is no dark scapular patch in males, two (IZ 5611, IZ 5617) have a faint pair of pale ocelli; the other two males (IZ 5612, ASFS V44968) lack them.

Scapular patches and ocelli are present in all but one of the 10 female paratypes, as well as in all 10 associated females and one juvenile. The dorsal bilineate pattern is usually quite distinct (even in small lizards—IZ 5378, SVL 23 mm) and is especially vivid in some (ASFS V44969). In some smaller lizards the tail has a tiny black tip, with a broader white band proximally, which is in turn bounded by a narrower black band. The head pattern is trilineate, with interspace dark lines between the major head lines in all specimens; there is no blurring or distortion of the three major cephalic lines in large specimens. Scapular patches vary from large and extensive (ASFS V44970) to relatively small and constricted (IZ 5614), but they and the included ocelli are always present. Dark throat markings are almost always present and obvious, varying from heavy in the holotype to less bold and lineate in some specimens. The distinct pale-and-dark neck streaking is also a constant feature, although the more lateral nuchal lines may disintegrate into a linear series of very dark spots or blotches (IZ 5618).

The associated specimens agree very well with our concept of *S. celicara*. There are five males, ten females, and two juveniles (SVL 16 and 20 mm). Only one male (IZ 3537) lacks a dotted or spotted head and throat, and another male (MCZ 13595, SVL 25 mm) not only has a dotted head and throat but also has a scapular patch and two ocelli, a most unusual condition. In the females, scapular patches and ocelli are present in all but one (IZ 3453, adult, SVL 29 mm). The juveniles show the female head and shoulder pattern.

Table 1.—Extremes and means of four characters of *S. notatus* and *S. celicara*, plus data on underbody keeling. *S. notatus* has been divided into two samples: Sample 1 from Pinar del Río to Camagüey provinces, Sample 3 from Oriente Province.

	S. notatus		
	Sample 1	Sample 2	*S. celicara*
n	57	118	30
Snout–vent length (mm) ♂	20–30 (25.8)	20–30 (25.0)	25–32 (28.7)
♀	20–30 (25.5)	20–32 (25.1)	22–31 (27.2)
Dorsal scales	18–28 (21.6 ± 0.7)	18–27 (22.1 ± 0.4)	21–30 (25.8 ± 0.9)
Midbody scales	31–49 (37.4 ± 1.4)	33–47 (39.5 ± 0.6)	40–51 (45.2 ± 1.2)
4th toe lamellae	7–11 (9.3; M_o = 10)	7–12 (9.7; M_o = 10)	9–13 (10.8; M_o = 11)
Ventral keeling			
Throat	none	2 (weak), 6 distinct	7 (absent in 23)
Chest	none	1 (+ throat)	none
Ventrals	none	109	none

Comparisons.—*Sphaerodactylus bromeliarum* is similar in general appearance but is not lineate dorsally, has keeled ventral scales, has a prominently black-and-white banded tail tip in adults, and has smaller scales (midbody scales 56–58 versus 40–51 in *S. celicara*). The only known adult (female) of *S. bromeliarum* has a SVL of 24 mm, much smaller than *S. celicara*.

It is with *S. notatus* that *S. celicara* most requires comparison. We have grouped data on 57 specimens from Pinar del Río to Camagüey provinces (Sample 1) and 118 specimens from Oriente Province (Sample 2) for the purposes of discussion (Table 1, Fig. 2). Both samples of *S. notatus* average smaller than both sexes of *S. celicara* in SVL. Samples 1 (21.6 ± 0.7) and 2 (22.1 ± 0.4) do not differ significantly in dorsal scale counts, but they do differ significantly from *S. celicara* (25.8 ± 0.9). The means of midbody scale counts in Samples 1 and 2 (37.4 ± 1.4 and 39.5 ± 0.6) differ significantly from each other and they are also significantly different from the mean in *S. celicara* (45.2 ± 1.2). There are fewer toe lamellae in the two samples of *S. notatus* than in *S. celicara* (Table 1).

Although the two samples of *S. notatus* as well as *S. celicara* modally have 1 internal scale, the frequency of 0 internasals (=nasals in contact) is much greater (35%) in *S. celicara* than in either sample (11% in each) of *S. notatus*. Throat, chest, and ventral keeling is summarized in Table 1.

The head pattern of male *S. notatus atactus* changes with age from a juvenile (=female) trilineate pattern to a dotted one and finally to an unpatterned one. Six males (50%) have head dotting, four (33%) have the head somewhat dotted, and two (17%) lack head dotting. In Sample 2, 16 males (37%) have the head either dotted or trilineate, two (5%) have the head somewhat dotted, and 25 (58%) lack head dotting. Head dotting is present in seven (78%) of nine male *S. celicara*. In throat spotting, Sample 1 has six of 12 males (50%) with spotted throats, Sample

2 has nine of 35 males (20%) with the throat spotted, whereas seven of nine (78%) male *S. celicara* have the throat spotted.

The female scapular pattern is absent in all 38 females in Sample 1 but occurs in 18 of 70 females (26%) in Sample 2. In *S. celicara,* 21 of 22 females (95%) have scapular patches and ocelli.

Remarks.—We have no doubt that *S. celicara* is indeed a distinct biological entity. Whether it would be more appropriate to consider it a subspecies of *S. notatus* rather than a separate species is a problem. *Sphaerodactylus notatus* and *S. celicara* are not known to be sympatric, but the ranges of the two approach fairly closely. The area from which *S. celicara* is known is remote and difficult to reach, and the region between the known ranges of *S. celicara* and *S. notatus* remains virtually unknown herpetologically.

Most of the type-series of *S. celicara* has been taken in or near the Hotel Asunción, on the walls and in the lobby. One male was secured in a *curujey* (Bromeliaceae) at La Máquina, and another was clinging to a rock. Like *S. notatus, S. celicara* apparently can adapt easily to edificarian situations, but the species may occupy a wide variety of niches.

Etymology.—The name *celicara* is a noun in apposition derived from the Greek *kēlis,* meaning spot or stain, and *kara* (an indeclinable neuter noun) meaning head, in allusion to the spotted heads in both sexes.

Acknowledgments

In addition to specimens in the Instituto de Zoología (IZ) La Habana, and the Albert Schwartz Field Series (ASFS), we have examined material in the American Museum of Natural History (AMNH) and the Museum of Comparative Zoology (MCZ) through the cooperation of the curators and their assistants: Richard G. Zweifel, George W. Foley, Ernest E. Williams, and José P. Rosado. The senior author had assistance in the field from Luis de Armas, Lorenzo Zayas, Jorge de la Cruz, Luis R. Hernández, José Espinosa, A. Vega, H. Sarazua, and Miguel L. Jaume. The senior author also wishes to extend thanks to Fernando González, director of the Instituto de Zoología, Academia de Ciencias de Cuba, for organizing the trip to Baracoa, and to the authorities of "Poder Popular" for providing transporation and accommodations in the environs of Baracoa. Jan Kresček supplied us with a transparency of an individual from Monte Iberia. The drawings of *S. celicara* are the work of Alvis Gineika, to whom we are also grateful.

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